Internet Technologies

PROGRAM ANNOUNCEMENT - Electronic Dissemination Only

DIRECTORATE FOR COMPUTER AND INFORMATION SCIENCE AND ENGINEERING

Division of Advanced Networking Infrastructure and Research (ANIR)
Advanced Networking Infrastructure Program (ANI)

Deadline: Proposals may be submitted at anytime

Updates will be announced on the following Website: http://www.cise.nsf.gov/anir/index.html

PROGRAM OBJECTIVE

The Advanced Networking Infrastructure (ANI) Program, through its Internet Technologies activity, supports the goal of accelerating R&D in strategic technologies. The purpose is to improve the operational or functional capabilities of the Internet and related collateral efforts for the benefit of the research and education community. Areas of support include but are not limited to complex network monitoring, problem detection and resolution mechanisms; development of automated and advanced network tools, networked applications tools or network-based middleware; and creation of usable and widely deployable networking applications that promote collaborative research and information sharing.

BACKGROUND

The Advanced Networking Infrastructure Program (previously the NSFNET Program) supports R&D for both (i) the networks that now connect U.S. researchers and educators to colleagues, information, computational resources, and remote facilities; and (ii) technologies that increase the value and utility of those networks for the U.S. research and education community. The development of experimental wide area networks such as the

NSFNET and the vBNS are large scale examples of this support. Internet technology projects supported by NSFNET/ANIR have included the National Laboratory for Applied Networking Research (NLANR): (http://www.nlanr.net), the Distributed Testbed for National Information Provisioning (http://ircache.nlanr.net/), Cornell University's Desktop Conferencing CU-SeeMe Software (http://cu-seeme.cornell.edu), Old Colorado Communication's Wireless Field Tests (http://wireless.oldcolo.com), and the University of Wisconsin's NetScout Project (http://scout.cs.wisc.edu/scout/).

The National Science Foundation is participating in the Interagency Next Generation Internet (NGI) initiative. The Internet Technologies activity supports the NGI initiative within the Advanced Networking Infrastructure Program. NGI (http://www.ngi.gov) has three goals that focus on 1) research for advanced networking technologies, 2) network testbed development, and 3) development of revolutionary science and engineering research applications that require advanced networks.

SCOPE OF THE INTERNET TECHNOLOGIES ACTIVITY

Proposed projects should enhance knowledge in unresolved Internet-related areas of discovery and development. The issues facing networking vary widely in complexity and scale, a fact which is expected to be reflected in proposed projects. In some instances, single investigator projects will be appropriate; for others, it may be necessary to mount a large team effort. While the full range is eligible for consideration, all proposals must provide a convincing rationale and justification for the level of effort proposed. Most awards are anticipated to fall between $50,000-$300,000 per year for up to three years. A request for projects ranging in size up to $1 million per year for up to three years will be considered if exceptional circumstances justify it. In all cases, the project must be designed so that its impact can be felt during the next two- to- five years. Cost sharing is encouraged. The amount of available funding per year for this activity is expected to be up to $5 million.

Examples of potential areas of support are:

- New approaches for improved performance and reliability of the Internet or networked information
- Security mechanisms for access, authentication, privacy, authorization
- Management tools for advanced networks
- Management tools for high performance networking:
  - QoS delivery
  - Scheduling mechanisms
  - Accounting systems
- Wireless, satellite and other alternatives to tethered (wireline) terrestrial network connectivity

- Implementations of application-level protocols that improve and facilitate information processing
- Improved access and/or utility of networks for research and education

Proposers are strongly encouraged to contact the ANI Program Manager either by phone or e-mail to discuss the possible projects and to ensure that they will fall within the scope of the Internet Technologies activity. This is particularly important for large scale projects.

Inquiries may be made to:
Program Manager, Internet Technologies
Phone: (703) 306-1949
E-mail: ani-itp@nsf.gov

Projects focusing more on fundamental, theoretical and experimental research in networking should refer to Special Projects in Networking (http://www.cise.nsf.gov/anir/nsf97-108.html) or the Networking Research Program (http://www.cise.nsf.gov/anir/networks.html) for other possible support opportunities.

PROPOSAL REVIEW

Proposals will be evaluated by ad hoc mail and/or panel review in accordance with established Foundation procedures and the criteria described below.

Proposals submitted in response to this program announcement will be subject to the new merit review criteria approved by the National Science Board on March 28, 1997 (NSB 97-72). The new merit review criteria are:

What is the intellectual merit and quality of the proposed activity?

For example, how important is the proposed activity to advancing knowledge and understanding within its own field and across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, reviewers may also comment on the quality of prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?

For example, how well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden

the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

In addition to these generic review criteria, additional criteria in the evaluation process for this announcement will be used in the evaluation of the proposal. These criteria are as follows:

All Proposals

- Appropriateness and credibility of the program plans, milestones, and technical evaluation plans for the applications
- Likelihood of impact within a two- to five- year time frame
- Probability of impact of the activity, and its significance

Multi-investigator Proposals:

- Effectiveness of management plans showing how team members will collaborate and how the distributed work will be coordinated and accomplished as proposed.

A summary rating and accompanying narrative will be completed and signed by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are mailed to the investigator by the Program Manager.

PREPARATION AND SUBMISSION OF PROPOSALS

Proposals submitted in response to this announcement will be accepted from colleges, universities, and other non-profit and for-profit institutions in the United States. Proposals involving collaboration with researchers and use of facilities of other countries or international groups are welcome, provided support is requested only for the U.S. portion of the collaborative effort.

Proposers for Internet Technologies are strongly encouraged to submit proposals via FastLane, NSF's system for electronic proposal submission and review, available through the World Wide Web.

FastLane
https://www.fastlane.nsf.gov/

In order to use NSF FastLane to prepare and submit full proposals to Internet Technologies, applicants must use a browser that supports multiple buttons, radio

buttons within tables, and file upload (e.g., Netscape 2.0 and above.) In addition, Adobe Acrobat Reader is needed to view and print forms. Instructions for downloading these software packages can be found in the "How to use FastLane" on the NSF FastLane Home Page. Detailed instructions on how to prepare and submit a standard proposal using FastLane are available under the "Information About FastLane".

Users may send technical questions and comments to the FastLane staff using the "Send Comments to NSF" feature at the bottom of the FastLane Home Page. In addition, specific technical questions concerning the use of FastLane may be directed to the ANIR divisional representative for FastLane (gclavon@nsf.gov) or to:

Dan Hofherr
Telephone: (703) 306-1142, extension 4686
E-mail: fastlane@nsf.gov

Mail Submissions:

Proposals should be prepared and submitted in accordance with the NSF Grant Proposal Guide (GPG) NSF 98-2 and the Proposal Forms Kit NSF 98-3. These documents can be accessed through the NSF Home Page (http://www.nsf.gov/) or you may request hard copies at no cost from:

NSF Clearinghouse
P.O. Box 218
Jessup, MD 20794-0218
TEL: 301-947-2722
e-mail: pubs@nsf.gov

Proposals will be subjected to initial screening for the requirements in the GPG and will be returned without review or advance notification if deficiencies are found.

Group and collaborative proposals involving more than one institution MUST be submitted as a single administrative package from a lead institution. Multiple submissions will not be accepted. (The proposal may be split into separate awards if the project is recommended for support.) The package should include one project summary, one table of contents, one project description, one section for references, and one copy of special information and appendices as specified in GPG section II.D.10-11. Additionally, the package should include, for the lead institution and its PIs/co-PIs, a signed cover sheet, budget pages and explanation, results from prior NSF support (up to 2 pages per person), biographic sketches (up to 2 pages per person), current and pending support for each PI/co-PI, and facilities and other resources unique to each institution.

An original and 9 copies of the proposal should be sent to:

Announcement No. NSF 98-104
Proposal Processing Unit
National Science Foundation
4201 Wilson Blvd., Room P-60
Arlington, VA 22230

Grant Administration and Conditions

Grants or cooperative agreements awarded as a result of this announcement will be administered in accordance with the terms and conditions of NSF GC-1, "Grant General Conditions" (12/97) and CA-1, "Cooperative Agreement General Conditions" or FDP-III (7/97), "Federal Demonstration Partnership General Terms and Conditions," depending on the grantee organization. Copies of these documents are available from the NSF on-line document system: http://www.nsf.gov/cgi-bin/ pubsys/browser/odbrowse.pl. More comprehensive information is contained in NSF 95-26, Grant Policy Manual (7/95), for sale through the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

GENERAL INFORMATION

The Foundation provides awards for research and education in the sciences and engineering. The awardee is wholly responsible for the conduct of such research and preparation of the results for publication. The Foundation, therefore, does not assume responsibility for the research findings or their interpretation.

The Foundation welcomes proposals from all qualified scientists and engineers and strongly encourages women, minorities, and persons with disabilities to compete fully in any of the research and education related programs described here. In accordance with federal statutes, regulations, and NSF policies, no person on grounds of race, color, age, sex, national origin, or disability shall be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving financial assistance from the National Science Foundation.

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF

projects. See the program announcement or contact the program coordinator at (703) 306-1636.

The National Science Foundation has TDD (Telephonic Device for the Deaf) capability, which enables individuals with hearing impairment to communicate with the Foundation about NSF programs, employment, or general information. To access NSF TDD, dial (703) 306-0090; for FIRS, 1-800-877-8339.

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the application review process; to applicant institutions/grantees to provide or obtain data regarding the application review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers as necessary to complete assigned work; to other government agencies needing information as part of the review process or in order to coordinate programs; and to another Federal agency, court or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Gail A. McHenry, Reports Clearance Officer; Information Dissemination Branch, DAS; National Science Foundation; Arlington, VA 22230.

Programs described in this publication are in Category 47.070 (Computer and Information Science and Engineering) in the Catalog of Federal Domestic Assistance.

OMB# 3145-0058

P.T. 18, 36; and K.W. 1004000, 1004001, 0901011, 10140001, 1004200, 1004055, 1004210, 1004265
NSF 98-104